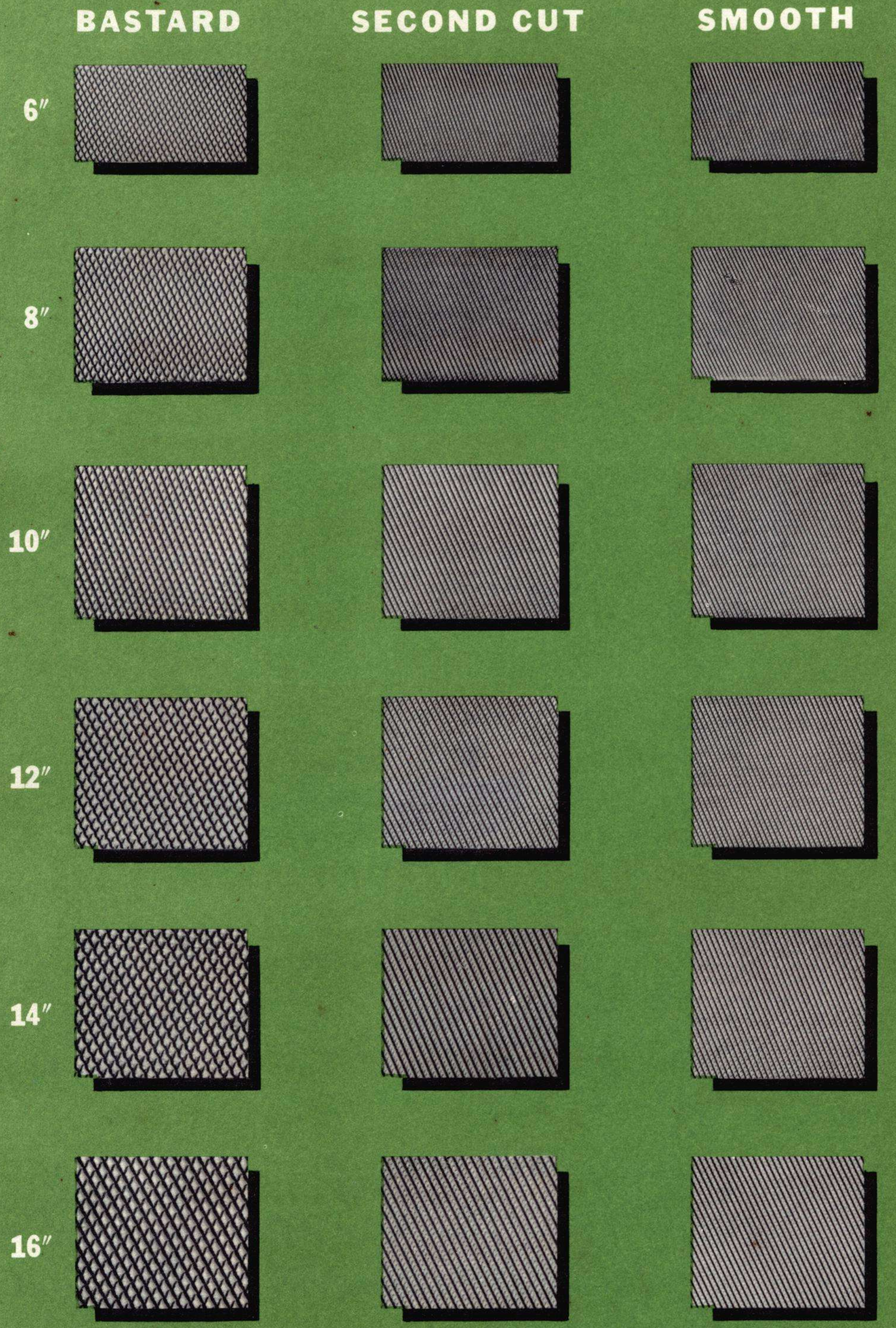
CATALOG
No. 56

DELTA FILES

DON HARTVIG
CHOWN HARDWARE CO.
N. W. 16th & FLANDERS
PORTLAND, OREGON

FILE Cuts

ACTUAL TOOTH COARSENESS
FLAT AND HAND (Double Cut) FILES



Degrees of coarseness in files are described by the terms bastard, second cut, and smooth. The actual coarseness, however, depends on the size of the file. Larger files have coarser teeth than the shorter sizes of the same cut.

The illustrations to the left show in actual size the comparative coarseness of a Flat or Hand (double cut) file in six lengths and the three cuts.

●

The succeeding pages show the approximate number of teeth per inch for all files listed. These are counted along the edges of the file and show in single cut files the actual number of teeth per inch, while in double cut files the reference is to the rows of teeth of the upcut.

The upcut is the last cut placed on a double cut file—therefore is deeper and more pronounced than the first cut, which is called the overcut.

DELTA FILES

BISCA

This is an

***Improved* Bastard File**

for **B**rass
Iron
Steel
Copper
Aluminum Alloys

A faster cutting file, easy to handle with no drift. Leaves a better finish. A double cut file with 25 to 40% increased file life.

BISCA *Files*

FAST CUTTING · SMOOTH FINISH

BISCA Files perform a dual function—the scientifically designed teeth remove metal like a double cut file and at the same time leave a smooth finish. An "all-around" file to speed production economically.

BISCA Files are recommended where one tool and one operation would save time and speed production. In shops or on production lines, where the work consists of filing a multiplicity of different metals, definite savings can be made.

Furnished only in Flats, Squares and Half Rounds in following sizes:

FLAT BISCA

Length Inches	Width	Thickness
8	13/16"	7/32"
10	1"	1/4"
12	1 3/16"	17/64"
14	1 3/8"	19/64"
16	1 17/32"	11/32"

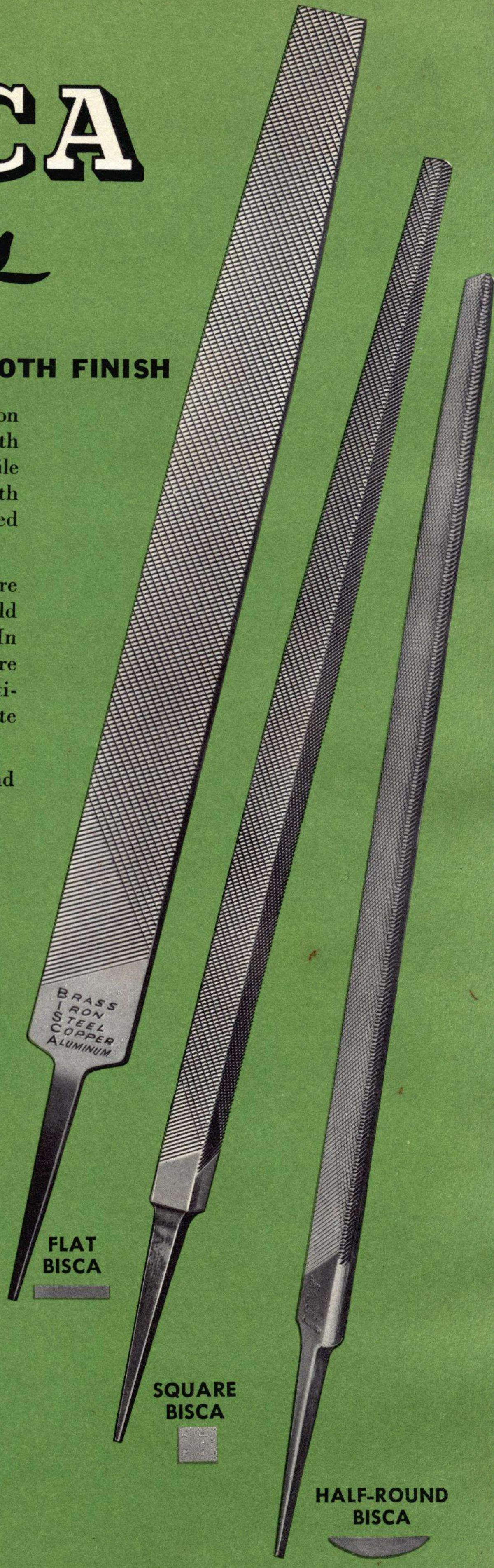
SQUARE BISCA

Length Inches	Width
12	1/2"
14	5/8"
16	3/4"

HALF-ROUND BISCA

Flat sides have Bisca teeth while the backs (convex sides) have regular double cut Bastard teeth.

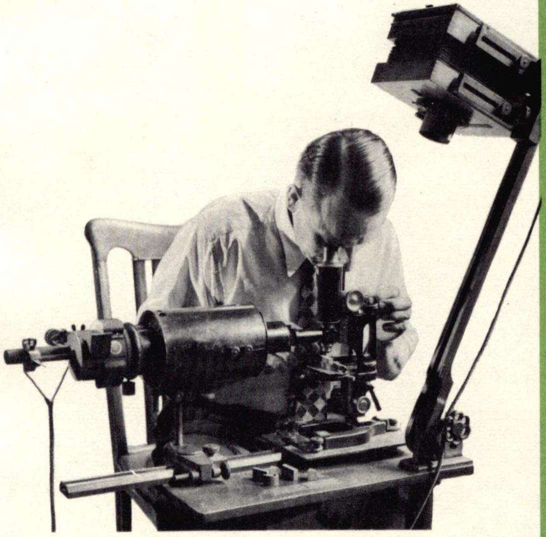
Length Inches	Width	Thickness
10	15/16"	9/32"
12	1 3/8"	11/32"
14	1 5/16"	13/32"



PRECISION *Plus*

Delta Files are not made by mass methods. In every one of the thirty or more operations necessary to produce a Delta File, individual care is given. A modern plant, with the latest scientific devices and controls, gives the skilled Delta workmen every assistance and incentive to produce files of uniform high quality. No attempt is made to cut costs by quantity methods that would lower the quality.

This fidelity to standards does not permit us to make files of more than one grade. No Delta workman is expected to aim at quality one day and at quantity the next. It is not in human nature to avoid compromises when that is attempted. Delta workmen have only one standard—the best that will and skill can make.



Micro-photographic equipment for the examination of steel, also to determine and maintain the proper heat treatment of the files during manufacture.

DIMENSIONS AND APPROXIMATE NUMBER OF TEETH PER INCH

FLAT FILE

Length	4	6	8	10	12	14	16	18	Inches
Width.....	$\frac{7}{16}$	$\frac{5}{8}$	$\frac{13}{16}$	1	$1\frac{3}{16}$	$1\frac{3}{8}$	$1\frac{17}{32}$	$1\frac{23}{32}$	"
Thickness..	$\frac{7}{64}$	$\frac{5}{32}$	$\frac{7}{32}$	$\frac{1}{4}$	$\frac{17}{64}$	$\frac{19}{64}$	$\frac{11}{32}$	$\frac{23}{64}$	"
Bastard....	43	32	25	22	18	17	15	14	teeth per inch
2nd Cut...	54	43	35	30	27	24	22	..	
Smooth....	69	54	46	40	35	31	30	..	

HAND FILE

Length	6	8	10	12	14	Inches
Width.....	$\frac{5}{8}$	$\frac{13}{16}$	1	$1\frac{3}{16}$	$1\frac{3}{8}$	"
Thickness..	$\frac{5}{32}$	$\frac{7}{32}$	$\frac{1}{4}$	$\frac{17}{64}$	$\frac{19}{64}$	"
Bastard....	32	25	22	18	17	teeth per inch
2nd Cut...	43	35	30	27	24	
Smooth....	54	46	40	35	31	

HALF-ROUND FILE

Length	4	6	8	10	12	14	16	Inches
Width.....	$\frac{7}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{15}{16}$	$1\frac{1}{8}$	$1\frac{5}{16}$	$1\frac{1}{2}$	"
Thickness..	$\frac{1}{8}$	$\frac{5}{32}$	$\frac{7}{32}$	$\frac{9}{32}$	$\frac{11}{32}$	$\frac{13}{32}$	$\frac{29}{64}$	"
Bastard....	43	32	25	22	18	17	15	teeth per inch
2nd Cut...	54	43	35	30	27	24	..	
Smooth....	69	54	46	40	35	31	30	

ROUND FILE

Length	4	6	7	8	10	12	14	16	Inches
Diameter..	$\frac{5}{32}$	$\frac{7}{32}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	"
Bastard ...	40	28	27	23	20	18	17	16	teeth per inch
2nd Cut ...	50	37	..	30	28	24	22	..	
Smooth....	62	48	..	41	37	33	31	..	

SQUARE FILE

Length	4	6	8	10	12	14	16	Inches
Width.....	$\frac{5}{32}$	$\frac{7}{32}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	"
Bastard....	45	35	27	23	20	17	16	teeth per inch
2nd Cut....	60	46	39	33	30	27	..	
Smooth....	75	58	45	42	37	34	..	

PILLAR FILE

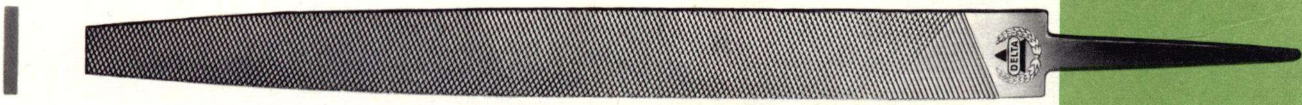
Length	6	8	10	12	Inches
Width.....	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{27}{32}$	"
Thickness..	$\frac{5}{32}$	$\frac{7}{32}$	$\frac{1}{4}$	$\frac{9}{32}$	"
Bastard....	37	30	24	22	teeth per inch
2nd Cut...	47	39	35	..	
Smooth....	60	50	45	..	

THREE-SQUARE FILE

Length	6	8	10	12	Inches
Width, Sides	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	"
Bastard....	35	27	23	20	teeth per inch
2nd Cut...	46	38	33	..	
Smooth....	58	46	42	..	

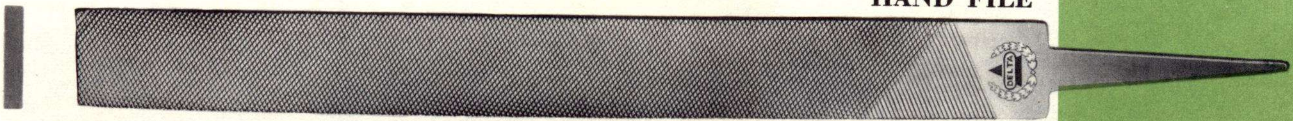
DELTA FILES

FLAT FILE



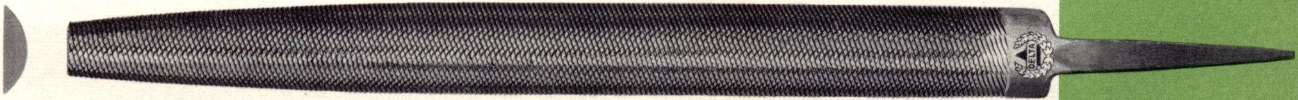
The most commonly used double-cut file. The rectangular cross section tapers toward the point, both in width and thickness. Both edges are cut.

HAND FILE



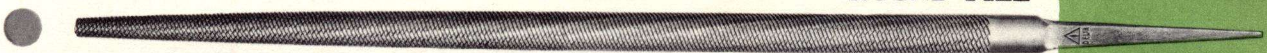
Hand files are double cut and are parallel in width but tapered in thickness. They have one cut edge, the other being left safe (uncut). Particularly useful when filing close to a shoulder.

HALF-ROUND FILE



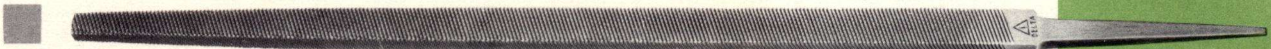
The flat sides of all Half-Round files are double cut. The backs (convex sides) are double cut in all sizes of Bastard pattern. The Second Cut pattern is double cut 8″ and up. The backs of smaller Second Cuts and all Smooth files are single cut. The edges of Bastard pattern 10″ and longer are cut. The edges of all other Half-Round files are left sharp.

ROUND FILE



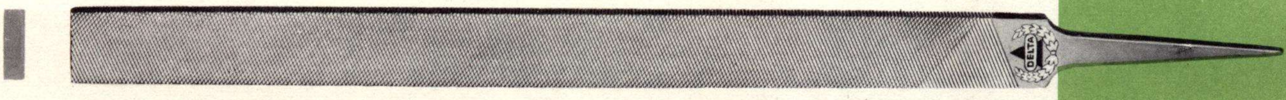
Furnished double cut in Bastard pattern 6″ and longer, and in Second Cut pattern 12″ and longer. All others furnished single cut.

SQUARE FILE



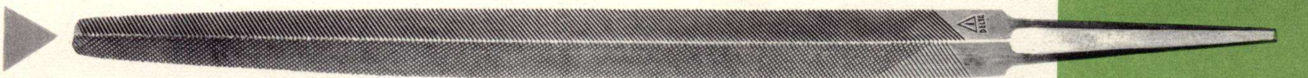
All Delta Square files are furnished double cut and are cut on all four sides.

PILLAR FILE



A narrow double cut file, parallel in width but tapered in thickness. Has two safe (uncut) edges.

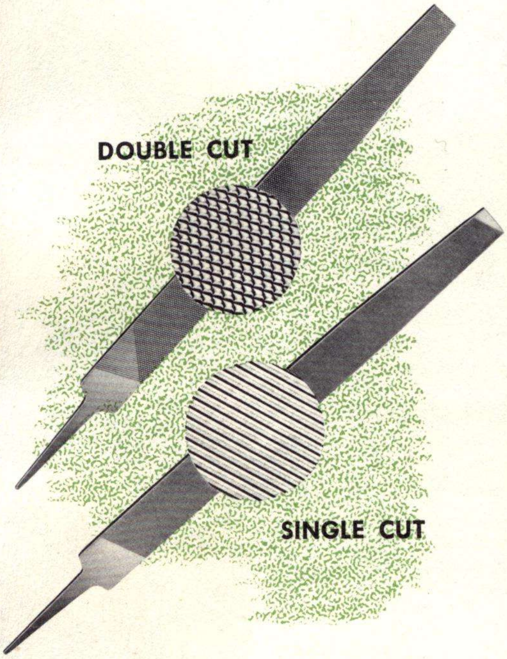
THREE-SQUARE FILE



A triangular file for machine shop use, not a saw file. Double cut on all three sides. The edges are sharp, not cut.

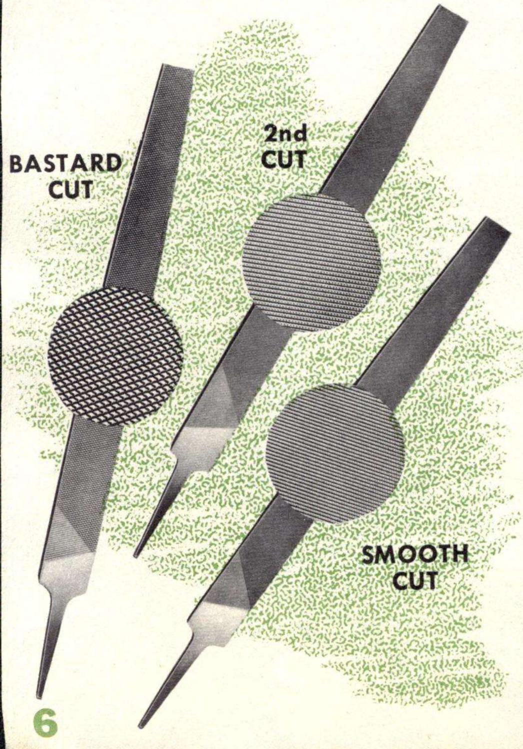
FILE FACTS

Files are made either double cut or single cut. A single cut file has a series of parallel cuts or teeth equally spaced. A double cut file has a second series of parallel cuts made on top of and at an angle to the first cuts.



There are three cuts of files in general use, distinguished by their degree of coarseness and known as bastard cut, second cut and smooth cut files. The bastard cut is used for hogging or the rapid removal of metal; the second cut for intermediate finishing and cutting tough alloy material and the smooth cut for fine, smooth finishing.

Actual file coarseness depends on the file length, for as the size of a file increases the coarseness also increases. Thus a fourteen-inch file is considerably coarser than a six-inch file.



DIMENSIONS AND APPROXIMATE NUMBER OF TEETH PER INCH

KNIFE FILE

Length	4	6	8	10	Inches
Width	$\frac{15}{32}$	$\frac{11}{16}$	$\frac{7}{8}$	$1\frac{1}{16}$	"
Thickness	$\frac{7}{64}$	$\frac{5}{32}$	$\frac{3}{16}$	$\frac{1}{4}$	"
Bastard	52	43	35	30	teeth per inch
2nd Cut	64	55	45	36	
Smooth	86	69	57	46	

WARDING FILE

Length	4	6	8	10	Inches
Width	$\frac{7}{16}$	$\frac{5}{8}$	$\frac{25}{32}$	$\frac{15}{16}$	"
Thickness	$\frac{1}{16}$	$\frac{5}{64}$	$\frac{3}{32}$	$\frac{1}{8}$	"
Bastard	52	43	35	29	teeth per inch
2nd Cut	70	57	46	38	
Smooth	86	70	57	45	

MILL FILE

Length	4	6	7	8	10	12	14	16	Inches
Width	$\frac{7}{16}$	$\frac{5}{8}$	$\frac{45}{64}$	$\frac{13}{16}$	1	$1\frac{3}{16}$	$1\frac{3}{8}$	$1\frac{17}{32}$	"
Thickness	$\frac{5}{64}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{5}{32}$	$\frac{3}{16}$	$\frac{7}{32}$	$\frac{1}{4}$	$\frac{9}{32}$	"
Bastard	58	50	48	44	39	35	31	27	teeth per inch
2nd Cut	..	61	..	51	45	40	35	..	
Smooth	78	71	..	59	53	47	41	..	

LONG ANGLE PARALLEL LATHE FILE

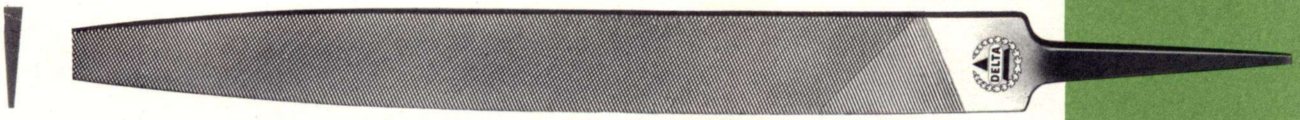
Length	10	12	14	Inches
Width	1	$1\frac{3}{16}$	$1\frac{3}{8}$	"
Thickness	$\frac{1}{4}$	$\frac{17}{64}$	$\frac{19}{64}$	"
Teeth per inch	24	22	19	

HALF-ROUND ALUMINUM FILE

Length	6	8	10	12	Inches
Width	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{15}{16}$	$1\frac{1}{8}$	"
Thickness	$\frac{5}{32}$	$\frac{7}{32}$	$\frac{9}{32}$	$\frac{11}{32}$	"
Teeth per inch	17	16	15	15	

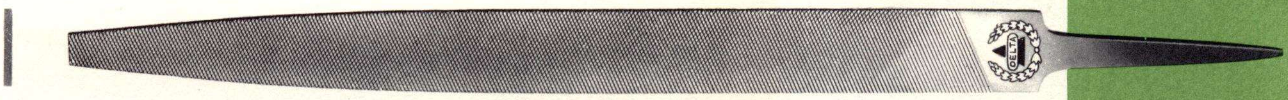
DELTA FILES

KNIFE FILE



So named from resemblance to a knife blade. Double cut both sides—single cut on edge. Particularly suited on work having acute angles.

WARDING FILE

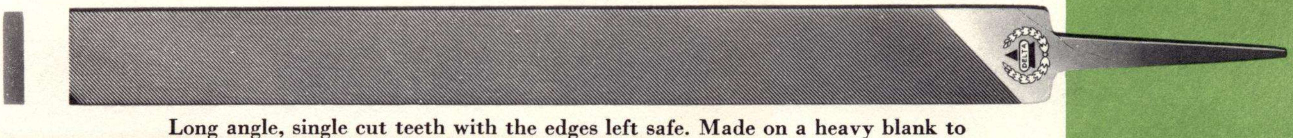


Named from its original use for filing the wards or notches in keys. Useful where a thin file is desired. Double cut both sides. Both edges cut.

MILL FILE

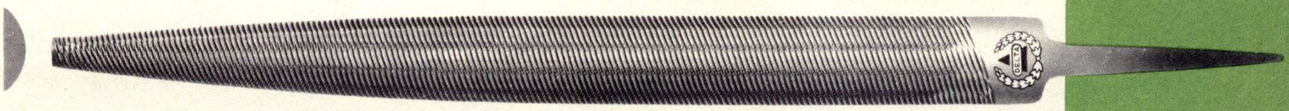
A single cut file originally made for filing mill saws. Widely used in machine shops also, due to its smooth shearing action. Made with two square edges. Both edges are cut. (See page 11 for additional information.)

LONG ANGLE PARALLEL LATHE FILE



Long angle, single cut teeth with the edges left safe. Made on a heavy blank to minimize springing in use. This file is parallel, that is, uniform in width and thickness throughout its length, making it particularly efficient for lathe filing.

HALF-ROUND ALUMINUM FILE



Same as above in Half-Round shape with coarse upcut and fine overcut.

FREE CUTTING FILES

The files shown on these pages are particularly efficient when filing tenacious materials such as soft metals, fibre, plastics, wood, etc., or a combination of steel and softer metals. Because of their tendency to clog and fill up the spaces between the teeth of ordinary files, these softer and tougher materials need free cutting files with wide spaced teeth.

The files on these two pages are single cut. Velvo and Zipper files have milled teeth, while Lead Float files have chisel cut teeth. Other free cutting files with chisel cut teeth are Aluminum and Brass (double cut) files shown on page 7.

• • •

DIMENSIONS AND APPROXIMATE NUMBER OF TEETH PER INCH

FLAT LEAD FLOAT FILE

Length	8	10	12	Inches
Width	13/16	1	1 3/16	"
Thickness	7/32	1/4	17/64	"
Teeth per inch	18	16	14	
HALF-ROUND LEAD FLOAT FILE				
Width	3/4	15/16	1 1/8	"
Thickness	7/32	9/32	11/32	"
Teeth per inch	18	16	14	

FLEXIBLE BLADE VELVO FINISHER

Length	14	Inches
Width	1 11/32	"
Thickness	7/32	"
Teeth per inch	9	

TANGED VELVO FINISHER

Length	14	Inches
Width	1 3/8	"
Thickness	19/64	"
Teeth per inch	9	

FLEXIBLE CURVED TOOTH FILE (Without Tang)

Length	10	12	14	Inches
Width	1	1 5/32	1 11/32	"
Thickness	5/32	3/16	3/16	"
Standard Cut	12	10	8	teeth per inch

FLAT RIGID CURVED TOOTH FILE (With Tang)

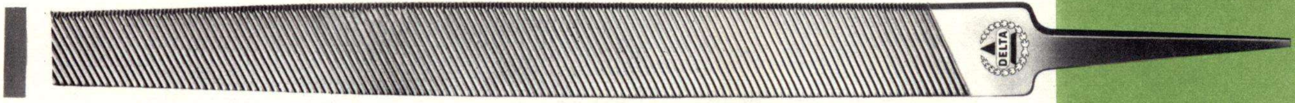
Length	8	10	12	14	Inches
Width	13/16	1	1 5/32	1 11/32	"
Thickness	11/64	7/32	17/64	5/16	"
Standard Cut	14	12	10	8	teeth per inch

HALF ROUND CURVED TOOTH FILE (With Tang)

Length	8	10	12	14	Inches
Width	23/32	15/16	1 1/8	1 9/32	"
Thickness	1/4	5/16	3/8	27/64	"
Standard Cut	14	12	10	8	teeth per inch

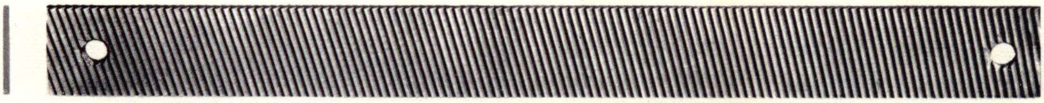
DELTA FILES

FLAT LEAD FLOAT FILE



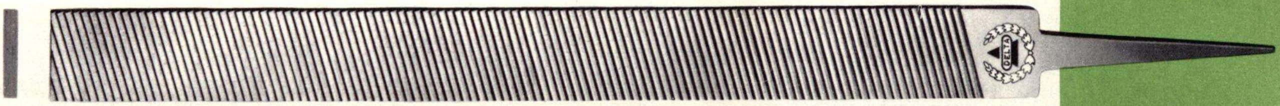
An open single cut known as a float cut. For use on lead and other soft metals. Also known as babbitt or solder files. Both edges cut. Also furnished in half round shape.

FLEXIBLE BLADE VELVO FINISHER



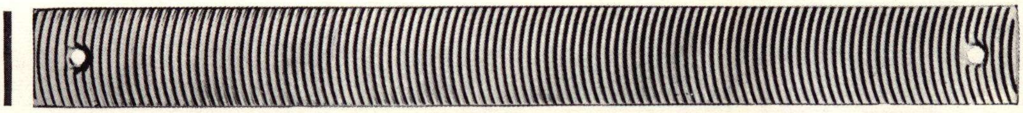
A fast cutting, smooth finishing, body file. Teeth are milled, not chisel cut, and each tooth individually sharpened. Teeth on both sides. Used with holder either flat or slightly convex.

TANGED VELVO FINISHER



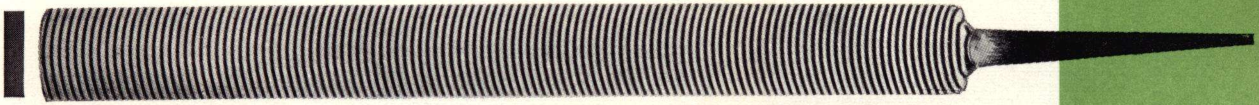
Milled teeth like the flexible blade, but on a stiff blank with tang. Has parallel sides and edges. Both edges safe.

FLEXIBLE CURVED TOOTH FILE (Without Tang)



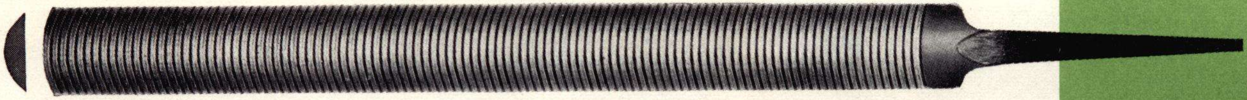
Widely used in the Automobile Manufacturing and Repairing trade. Teeth milled on both sides. Has countersunk hole in each end for fastening to holder.

FLAT RIGID CURVED TOOTH FILE (With Tang)



Recommended for use on flat surfaces which require a straight stroke and even pressure.

HALF ROUND CURVED TOOTH FILE (With Tang)



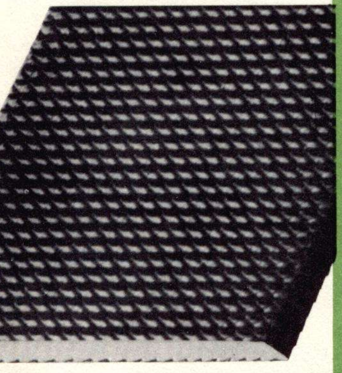
Flat on one side and convex on the other. Recommended for use on flat or concave surfaces.

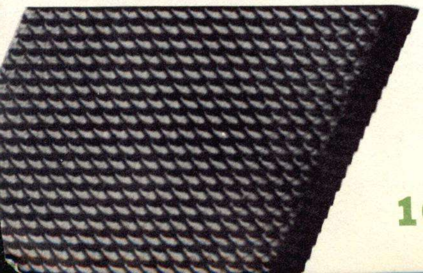
WHAT *Uniform Teeth* MEAN

The teeth of Delta Files are formed by individual blows of a chisel, which cause displacement of the metal. Each tooth thus thrown up cuts with the ultimate thousandth of an inch of its edge. Whatever alters the shape, the height, the hardness or the toughness of those microscopic edges, alters the performance of the file.

As with a razor blade, the cost of the material is not important. But the cutting quality of a file, like that of the razor blade, depends on the care and precision used in manufacture. Teeth of uniform height and contour are difficult and costly to produce, but only with uniform teeth do you get smooth, efficient file performance.

Magnified photo (not retouched) to show uniform height of teeth.





DIMENSIONS AND APPROXIMATE NUMBER OF TEETH PER INCH

MILL FILE

Length	4	6	7	8	10	12	14	16	Inches
Width.....	$\frac{7}{16}$	$\frac{5}{8}$	$\frac{45}{64}$	$\frac{13}{16}$	1	$1\frac{3}{16}$	$1\frac{3}{8}$	$1\frac{17}{32}$	"
Thickness .	$\frac{5}{64}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{5}{32}$	$\frac{3}{16}$	$\frac{7}{32}$	$\frac{1}{4}$	$\frac{9}{32}$	"
Bastard...	58	50	48	44	39	35	31	27	teeth per inch
2nd Cut...	..	61	..	51	45	40	35	..	
Smooth...	78	71	..	59	53	47	41	..	

MILL FILES (Round Edges)

TWO ROUND EDGES (Illustrated)					
Length	6	8	10	12	Inches
Bastard....	50	44	39		teeth per inch
ONE ROUND EDGE					
Bastard....	50	44	39	35	teeth per inch

LANCE TOOTH CROSS CUT FILE (Mill Blunt Bastard)

Length	6	7	8	10	Inches
Width.....	$\frac{5}{8}$	$\frac{45}{64}$	$\frac{13}{16}$	1	"
Thickness..	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{5}{32}$	$\frac{3}{16}$	"
Bastard....	50	48	44	39	teeth per inch

GREAT AMERICAN CROSS CUT SAW FILE

Length	8	10	Inches
Width	$\frac{11}{16}$	$\frac{13}{16}$	"
Thickness..	$\frac{9}{32}$	$\frac{3}{8}$	"
Teeth per Inch	45	41	

CANT SAW FILE

Length	6	8	10	Inches
Width.....	$\frac{17}{32}$	$\frac{11}{16}$	$\frac{13}{16}$	"
Thickness..	$\frac{13}{64}$	$\frac{17}{64}$	$\frac{5}{16}$	"
Teeth per Inch	52	46	41	

REGULAR BANDSAW, BLUNT

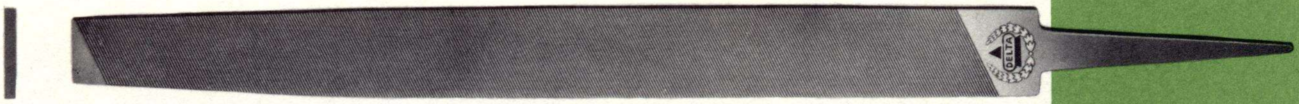
Length	6	8	Inches
Width, Sides	$\frac{1}{2}$	$\frac{5}{8}$	"
Teeth per Inch	42	39	

SLIM BANDSAW, BLUNT

Length	6	8	Inches
Width, Sides	$\frac{3}{8}$	$\frac{1}{2}$	"
Teeth per Inch	52	43	

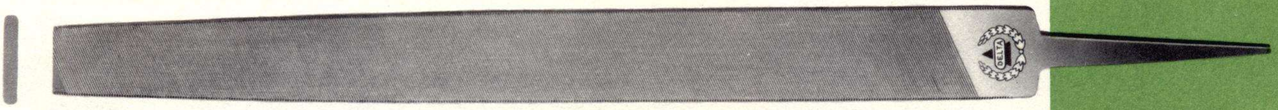
DELTA FILES

MILL FILE



A single cut file originally made for filing mill saws. Widely used in machine shops also, due to its smooth shearing action. Made with two square edges. Both edges are cut.

MILL FILE—Two Round Edges

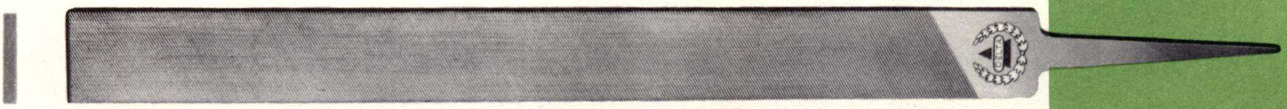


Similar to the preceding file but with two rounded cut edges. Used for filing the gullets of saw teeth.

MILL FILE—One Round Edge

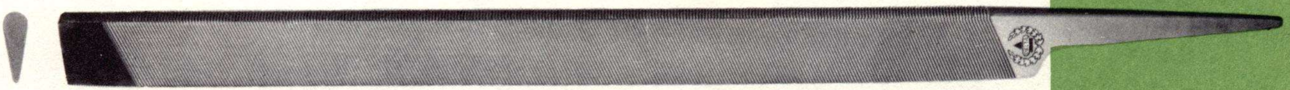
Same as above except that it has one round and one square edge, both cut.

LANCE TOOTH CROSS CUT FILE



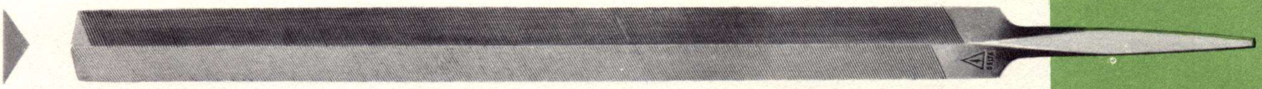
Single cut like a Mill Bastard file but parallel in both width and thickness. Both edges cut. The greater width at the point makes this file particularly efficient in filing cross cut saws. Also known as Mill Blunt Bastard.

GREAT AMERICAN CROSS CUT FILE



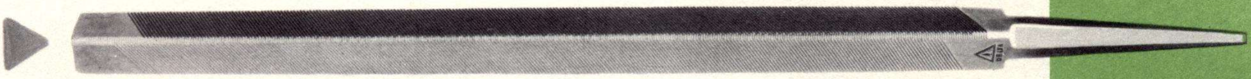
Single cut. Designed for filing Great American cross cut saws. The rounded back is cut for filing gullets.

CANT SAW FILE



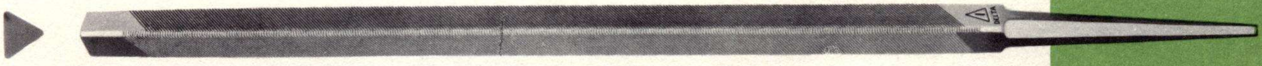
Single cut on all three sides,—two edges cut. A special three-sided shape used for sharpening certain types of cross cut, circular, and buck saws.

REGULAR BANDSAW, BLUNT



Single cut. For filing bandsaws with well rounded gullets. Has heavy rounded cut edges.

SLIM BANDSAW, BLUNT



Single cut. Same as Regular Blunt Bandsaw file but smaller cross section.

DELTA
ROUND CHAIN SAW FILES

No. 312

No. 310

No. 309

No. 308

QUALITY FILES
DESIGNED TO SHARPEN CHAIN SAWS
CORRECTLY AND EFFICIENTLY

These Chain Saw Files have fine teeth, cut to the correct angle for a shearing action to sharpen Chain Saws with rounded cutting faces, with a minimum number of strokes.

Illustrated are the popular sizes. These files are round in shape with true and controlled diameters to meet exacting requirements. The files are the blunt pattern, completely straight, for a full cutting stroke and controlled filing.

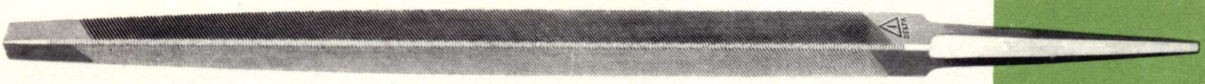
Catalog Numbers			
Single Cut	Double Cut	Diameter	Length
No. 312	No. 322	⅜″	8″
No. 310	No. 320	5/16″	8″
No. 309	No. 319	9/32″	8″
No. 308	No. 318	¼″	8″

Packed 1 dozen in a box.

DELTA FILES

DIMENSIONS AND APPROXIMATE NUMBER OF TEETH PER INCH

REGULAR TAPER SAW FILE



Length	6	7	8	10	Inches
Width, Sides	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	"
Teeth per inch......	42	39	39	34	

SLIM TAPER

Length	4	5	6	7	8	10	Inches
Width, Sides.......	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{13}{32}$	$\frac{1}{2}$	$\frac{19}{32}$	"
Teeth per inch.....	60	56	52	47	43	39	

EXTRA SLIM TAPER

Length	4	5	5½	6	7	8	Inches
Width, Sides.......	$\frac{3}{16}$	$\frac{7}{32}$	$\frac{1}{4}$	$\frac{9}{32}$	$\frac{11}{32}$	$\frac{13}{32}$	"
Teeth per inch.....	64	61	60	58	53	50	

DOUBLE EXTRA SLIM

Length	4	5	6	7	8	Inches
Width, Sides.......	$\frac{5}{32}$	$\frac{3}{16}$	$\frac{7}{32}$	$\frac{1}{4}$	$\frac{5}{16}$	"
Teeth per inch.....	70	66	62	56	52	

CARPENTER'S SPECIAL

Length	5½	Inches
Width, Sides	$\frac{1}{4}$	"
Teeth per inch......	62	

MECHANIC'S FAVORITE

Length	7	Inches
Width, Sides	$\frac{1}{4}$	"
Teeth per inch......	56	

EXPERT'S CHOICE

Length	8	Inches
Width, Sides	$\frac{5}{16}$	"
Teeth per inch......	52	

DOUBLE ENDER

Length	6	7	8	9	10	Inches
Width,Sides........	$\frac{3}{16}$	$\frac{7}{32}$	$\frac{9}{32}$	$\frac{11}{32}$	$\frac{3}{8}$	"
Teeth per inch......	62	60	57	54	49	

Furnished one dozen files and six handles to package

All the files on this page are single cut on all three sides and three edges.

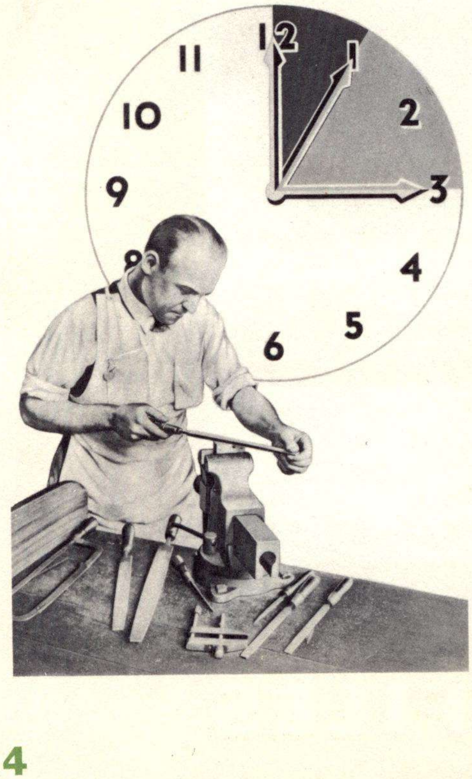
Reduce Your FILING COST

An hour's wage is the maximum difference between the price of a box of Delta Files and a box of the cheapest brands. But that hour of extra care repays itself several times over in added service.

Before a Delta File is worn out it has added several times its own cost to the value of the man using it, by enabling him to do more work per hour.

And remember that Delta Files outlast others as they outcut them. Labor cost or file cost—you will win with Deltas.

INVEST AN HOUR and SAVE THREE



Dimensions and Approximate Number of Teeth Per Inch

CABINET RASP

Length	**6**	**8**	**10**	**12**	**14**	**Inches**
Width	$\frac{23}{32}$	$\frac{15}{16}$	$1\frac{1}{8}$	$1\frac{5}{16}$	$1\frac{9}{16}$	"
Thickness	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{9}{32}$	$\frac{11}{32}$	$\frac{13}{32}$	"
2nd Cut	$8\frac{2}{3}$	$8\frac{2}{3}$	$6\frac{2}{3}$	$6\frac{2}{3}$	$6\frac{2}{3}$	teeth per inch
Smooth	..	12	10	10	..	

FLAT WOOD RASP

Length	**8**	**10**	**12**	**14**	**Inches**
Width	$\frac{13}{16}$	1	$1\frac{3}{16}$	$1\frac{3}{8}$	"
Thickness	$\frac{9}{32}$	$\frac{11}{32}$	$\frac{13}{32}$	$\frac{15}{32}$	"
Bastard	$6\frac{2}{3}$	$5\frac{3}{4}$	$5\frac{1}{4}$	$4\frac{3}{4}$	teeth per inch

HALF-ROUND WOOD RASP

Length	**6**	**8**	**10**	**12**	**14**	**16**	**Inches**
Width	$\frac{5}{8}$	$\frac{13}{16}$	1	$1\frac{3}{16}$	$1\frac{3}{8}$	$1\frac{9}{16}$	"
Thickness	$\frac{15}{64}$	$\frac{5}{16}$	$\frac{13}{32}$	$\frac{15}{32}$	$\frac{17}{32}$	$\frac{37}{64}$	"
Bastard	10	$6\frac{2}{3}$	$5\frac{3}{4}$	$5\frac{1}{4}$	$4\frac{3}{4}$	$4\frac{1}{4}$	teeth per inch
Smooth	..	10	$8\frac{2}{3}$	$8\frac{2}{3}$	..	..	

AUGER BIT FILE

Length.................................7 **Inches**

DOCTOR BLADE FILE

Length	**14**	**Inches**
Width	$1\frac{7}{16}$	"
Thickness	$\frac{11}{32}$	"
Coarse	19	teeth per inch
Smooth	35	

FILE CARD AND BRUSH

A Two-in-one Handy Cleaner

Length.................................9 **Inches**

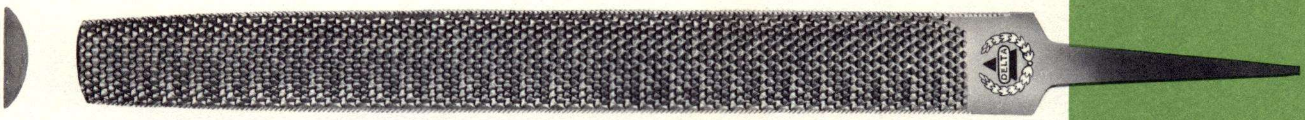
FILE CARD AND BRUSH

A file cleaned regularly with this brush will give 25% longer life and efficiency.

Rounded edge handle fits hand comfortably. Special hole in handle for hanging up while not in use.

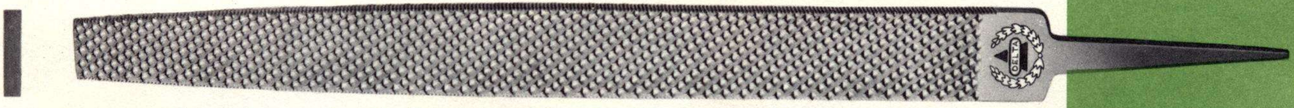
DELTA FILES

CABINET RASP



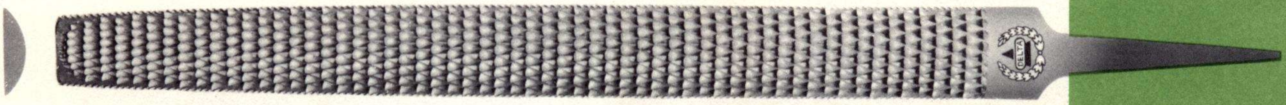
The cabinet shape is a modified half-round. Rasp cut on flat and convex sides, file cut on edges.

FLAT WOOD RASP



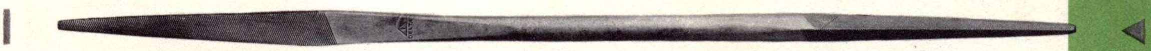
Same shape as flat file. Rasp cut on flat sides. File cut on edges.

HALF-ROUND WOOD RASP



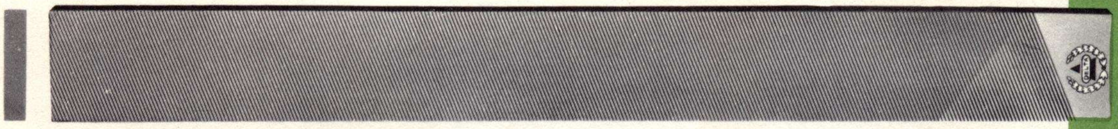
Rasp cut on flat and convex sides of the regular half-round shape. File cut on edges.

AUGER BIT FILE



One end flat with one safe edge; one end triangular. The taper shape accommodates all sizes of bits.

DOCTOR BLADE FILE



Double cut both sides. Safe edges. For filing Doctor Blades. Usually furnished without tang.

FILE CARD AND BRUSH

This combination of file card and brush should be in the hands of every file user, mechanic, householder and automobilist. The strong and sharp wire fibres readily remove all grit while the brush cleans the file thoroughly.

DELTA
BISCA
FILES

for

- *Versatility*
- *Efficiency*
- *Durability*

DELTA FILE WORKS, INC.

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